

Appl. No. 10/040,888

Response dated July 22, 2005

Reply to the Notice of Non-Compliant Amendment mailed July 6, 2005

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-36 (Canceled)

Claim 37 (New): A polymer for use in dental restoratives wherein the polymer has a backbone structure consisting essentially of:

- a) a first monomer unit comprising acrylic acid (AA);
- b) a second monomer unit comprising maleic acid (MA); and
- c) a third monomer unit comprising a free-radical polymerizable vinyl amide; and

wherein the polymer optionally has a free-radical or visible light curable (VLC) moiety pendant to the polymer backbone.

Claim 38 (New): The polymer of claim 37 wherein the free-radical polymerizable vinyl amide is selected from the group consisting of acrylamide, methacrylamide, dimethylacrylamide, isopropylacrylamide, N-vinyl-2-pyrrolidone, N-vinylcarbazole, N-vinylsuccinimide, N-vinylcaprolactam, and N-vinylimidazole.

Claim 39 (New): The polymer of claim 38 wherein the free-radical polymerizable vinyl amide is N-vinyl-2-pyrrolidone.

Claim 40 (New): The polymer of claim 37 wherein the concentration of the free-radical polymerizable vinyl amide ranges from about 5 to about 25 mole percent.

Claim 41 (New): The polymer of claim 40 wherein the concentration of the free-radical polymerizable vinyl amide ranges from about 5 to about 10 mole percent.

Appl. No. 10/040,888

Response dated July 22, 2005

Reply to the Notice of Non-Compliant Amendment mailed July 6, 2005

Claim 42 (New): The polymer of claim 37 wherein the free-radical or VLC moiety is selected from the group consisting of vinyl-substituted unsaturated cyclic imino ethers, 2-isocyanatoethyl methacrylate, and glycidyl methacrylate.

Claim 43 (New): A dental restorative comprising:

- a) a polymer wherein the polymer has a backbone structure comprising:
  - i) a first monomer unit comprising acrylic acid (AA);
  - ii) a second monomer unit comprising maleic acid (MA); and
  - iii) a third monomer unit comprising a free-radical polymerizable vinyl amide; and
- b) an inorganic glass powder;

wherein the dental restorative is formed when the polymer is blended with the inorganic glass powder.

Claim 44 (New): The dental restorative of claim 43 wherein the inorganic glass powder is a calcium fluoroaluminosilicate glass.

Claim 45 (New): The polymer of claim 43 wherein the free-radical polymerizable vinyl amide is selected from the group consisting of acrylamide, methacrylamide, dimethylacrylamide, isopropylacrylamide, N-vinyl-2-pyrrolidone, N-vinylcarbazole, N-vinylsuccinimide, N-vinylcaprolactam, and N-vinylimidazole.

Claim 46 (New): The polymer of claim 45 wherein the free-radical polymerizable vinyl amide is N-vinyl-2-pyrrolidone.

Claim 47 (New): The polymer of claim 43 wherein the concentration of the free-radical polymerizable vinyl amide ranges from about 5 to about 25 mole percent.

Claim 48 (New): The polymer of claim 47 wherein the concentration of the free-radical polymerizable vinyl amide ranges from about 5 to about 10 mole percent.

Appl. No. 10/040,888

Response dated July 22, 2005

Reply to the Notice of Non-Compliant Amendment mailed July 6, 2005

Claim 49 (New): The dental restorative of claim 43 further comprising a free-radical or visible light curable moiety pendant to said polymer, said free-radical or visible light curable moiety selected from the group consisting of vinyl-substituted unsaturated cyclic imino ethers, 2-isocyanatoethyl methacrylate, and glycidyl methacrylate.

Claim 50 (New): A method for preparing a polymer to be used in dental restoratives comprising:

- a) polymerizing monomers comprising:
  - i) a first monomer unit comprising acrylic acid (AA);
  - ii) a second monomer unit comprising maleic acid (MA); and
  - iii) a third monomer unit comprising a free-radical polymerizable vinyl amide; and
- b) recovering said polymer from the reaction mixture;

wherein the polymer can be blended with an inorganic glass powder to make a dental restorative.

Claim 51 (New): The polymer of claim 50 wherein the free-radical polymerizable vinyl amide is selected from the group consisting of acrylamide, methacrylamide, dimethylacrylamide, isopropylacrylamide, N-vinyl-2-pyrrolidone, N-vinylcarbazole, N-vinylsuccinimide, N-vinylcaprolactam, and N-vinylimidazole.

Claim 52 (New): The polymer of claim 51 wherein the free-radical polymerizable vinyl amide is N-vinyl-2-pyrrolidone.

Claim 53 (New): The polymer of claim 50 wherein the concentration of the free-radical polymerizable vinyl amide ranges from about 5 to about 25 mole percent.

Claim 54 (New): The polymer of claim 53 wherein the concentration of the free-radical polymerizable vinyl amide ranges from about 5 to about 10 mole percent.

Appl. No. 10/040,888

Response dated July 22, 2005

Reply to the Notice of Non-Compliant Amendment mailed July 6, 2005

Claim 55 (New): The method of claim 50, wherein the recovered polymer is reacted with vinyl-substituted unsaturated cyclic imino ethers, 2-isocyanatoethyl methacrylate, or glycidyl methacrylate, to produce a visible light-curable polymer.